



Energy biomass and water quality

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The European Union undertakes a wide range of actions and programmes to improve environmental quality of surface waters and groundwater – one of the most current and most important surely being the Water Framework Directive (WFD). By 2015, all European countries are requested to work towards a good water status for all surface and ground waters. To accomplish the environmental objectives defined by the WFD, measures and remedial actions for surface waters have to be introduced and implemented, also in terms of guiding agricultural land use in catchments where waters are loaded with diffuse nutrients beyond the good status due to agricultural land use. With the current boom in energy biomass cropping, though, a considerable increase in the cultivation of biomass as a renewable energy resource can be seen in Germany. It is inspired by national and European strategies for climate protection and securing energy supply. With the increase in the area under cultivation, amongst others on marginal lands and set-asides, an increase in the intensity of land use is associated.

This paper discussed the impacts of the observed and even more so predicted change in and intensification of agricultural land use on the natural environment with regard to water quality management in rural areas. Scenario models quantifying non-point source nutrient discharges from agricultural land use are presented, illustrating the impact of the observed and expected increase in area under cultivation, types of crops grown for energy biomass, and possible changes in soil cultivation and fertilizing for selected watersheds in south-western Germany.

The results leave to discuss, how much energy biomass can be produced in Germany / Europe taking into account long-term sustainability and considering European and national regulations and frameworks aiming at environment and nature conservation.

Do we have to expect – and/or to accept -, that environmental goals are foiled at worst case due to the biomass boom for the sake of producing “environmentally friendly” energy, such as the Water Framework Directive - which has already tied up an enormous amount of money and personnel till now? What measures have to be taken to assure sustainable cultivation of energy biomass?